

## **Glasgow's Record Breaking Winter**

By Tanja Fransen---Warning Coordination Meteorologist, Glasgow, MT

The winter weather outlook that we initially got in August 2010 showed La Nina intensifying, usually meaning a colder and somewhat wetter winter for those of us living in northeast Montana. The National Weather Service Office serving this region is in Glasgow, Montana, and we warned the public that it would be colder and wetter, but never did we imagine the “wetter” would not only break record snowfall amounts, but shatter them!

We had a trace of snow in early September 2010, but it gave way to a fairly warm and pleasant October (with just one small snowfall event). November brought some warmer weather as well, with a 70 degree F reading on the 7<sup>th</sup>. But, the arctic cold front came through and on the 18<sup>th</sup> we had a high of 36 degrees F, and by the 19<sup>th</sup> and 20<sup>th</sup> we struggled to reach 11 degrees F. The high the day before Thanksgiving was just 2 degrees F below zero. And, the snow hit hard with this system as well. By the end of the month, we had 12.6 inches of snow, where normal is 4.5 inches.

December was nearly 6 degrees F colder than normal, and brought us another 24.7 inches of snow, which was the second snowiest month on record. Normal is 6.7 inches of snow in December and January.



December 10, 2010 storm at NWS Glasgow.



December 20, 2010 storm at the NWS Glasgow office.



NWS Glasgow Upper Air Weather Balloon Building during the Dec 29-30, 2010 Blizzard.

January didn't slow down at all. It started out with a low of -29 degrees F, and ended with a -30 degrees F. It also dumped 41.6 inches of snow on us, breaking the previous record snowfall of 32.9 inches in January 2004. Temperatures ranged from a balmy 41 degrees F on January 6<sup>th</sup> to a frigid 30 below F on January 31<sup>st</sup>. A 71 degree F temperature difference!

February gave us a bit of a lull in the beginning, but has dropped a bit of snow here and there through the second half of the month. But, the cold hit with a fury. We hit -37 degrees F on Feb 1<sup>st</sup>, the coldest temperature in Glasgow since February 1996. It was a bit of a wild ride, as one day during the month, the overnight low was a balmy 26 degrees F! The highest temperature during the month was 44 degrees F, the lowest -37 degrees F, an 81 degree F difference. The February snowfall total ended up at 13.8 inches. As of the middle of March, we had a total of 105.3 inches of snow. Our previous record snowfall year was in 2003-2004 with 70.7 inches of snowfall. Normal for a season is just 30 inches. ☺



NWS Glasgow Upper Air Weather Balloon building on a -37 below F morning in February. Notice the height of the snow drifts from where the snow plow had to clear the building area.

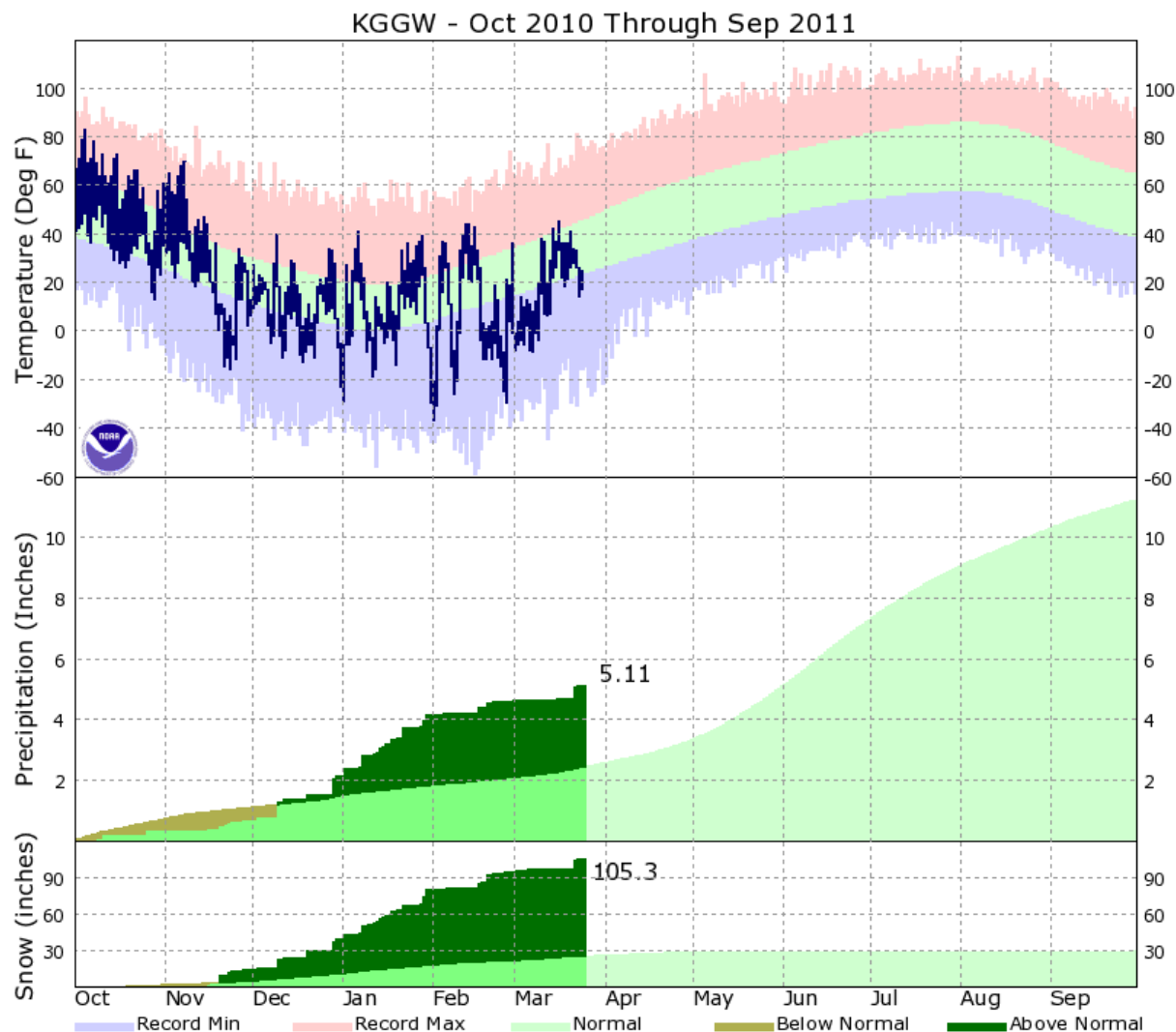


Montana Department of Transportation employees are using a rotary blower to push back the drifts off of the Highway between Fort Peck Lake and Nashua, areas just east and southeast of Glasgow.





Montana Department of Transportation Supervisor pickup next to one of the large drifts they have to cut back in order to keep a main road open.



So, I've given you all the numbers, but what is the real impact? Valley County, of which Glasgow is the County Seat, has over 2,000 miles of roads to maintain. Between the city, county and state road departments, they have been working 7 days a week, with 16+ hour days to keep the roads cleared. Our region receives a lot of wind, and at the beginning of the year we needed winds of 20 mph or higher to cause significant drifting. For the past 4-6 weeks though, anything around 10-15 mph will start to blow the snow again, and drift roads right back in.

Wildlife is suffering as well. Herds of antelope and deer have stayed close to roads and railroad tracks in order to find food and be able to walk. Normally the tops of our hills are blown bare of snow, leaving them with some grass, but that isn't the case this year. They are being killed by cars and trains. The local railroad has estimated that they have hit several herds of antelope, the most being over 300 animals on the tracks. It takes nearly 2 miles to stop a train, so when wildlife is on the track, it can be a pretty bad situation. The Montana Fish, Wildlife and Parks office has stated that the number of hunting

permits will likely have to be reduced this year due to the tremendous losses of deer, antelope and even game birds this year.

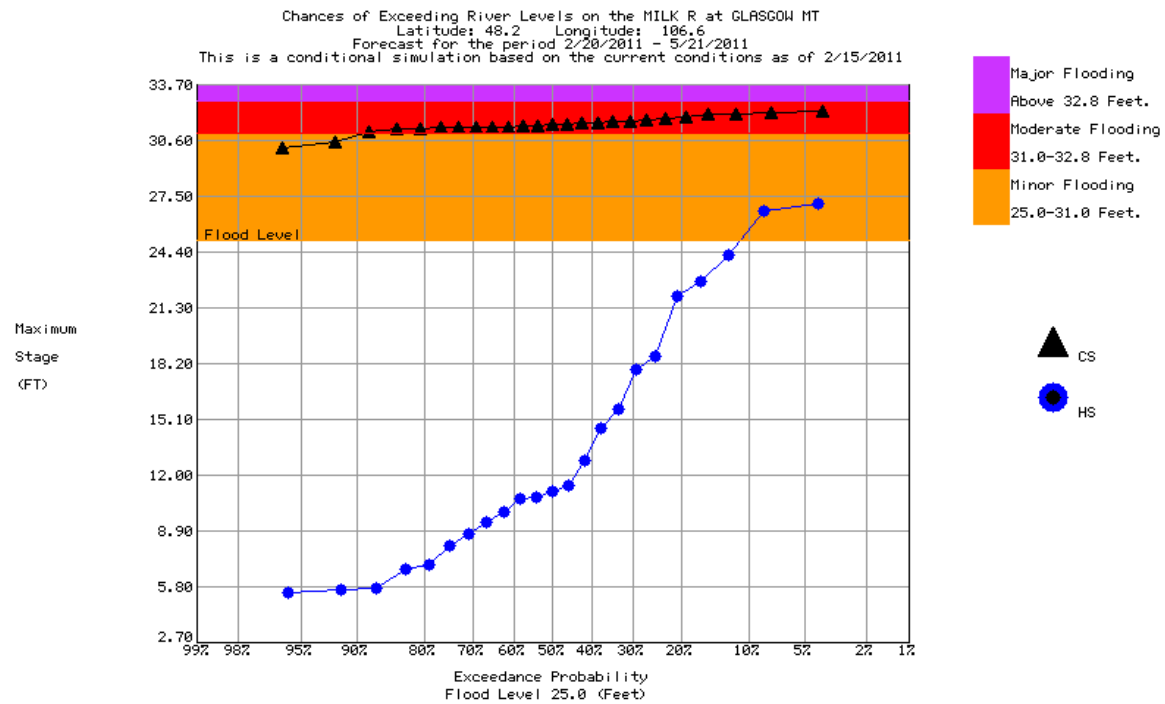
Local business owners have had a hard time keeping up with the snowfall as well. City ordinance doesn't allow them to push snow out into the street, but they have run out of places to put the snow. Many have had to hire contractors to come and remove the snow to areas outside of town, but this additional cost isn't something that most businesses considered in their budgets at the start of winter. One booming business is anyone that has a snowplow, or small tractor with a scoop on the front. They are staying very busy with snow removals in private driveways, and the smaller businesses throughout town.



We cheered from the NWS Glasgow office when two smaller Bobcats, and a giant Caterpillar Tractor arrived to clear our driveway, assuring that we would be able to go home after this heavy snow event!

With another 3 months that could have snowfall, local residents have just about had enough, but most everyone is willing to hit 100 inches of snow, just to say we've been there. The big concern now is the potential for flooding. The Milk River runs along the south side of Glasgow, and last flooded significantly in 1997. Residents are purchasing flood insurance and making plans to protect homes that may be at risk. The current forecast that covers the next three months shows a 96% chance of hitting 29.00 feet, which is 4 feet above flood stage. Early April will be a critical time across the region as daily temperature averages start rising, and we see a few hints of spring with temperatures rising into the 40 to 50 degrees F range.





Blue line is the probability of hitting flooding in an average year with normal temperature and precipitation through the next 3 months. The black line is showing current conditions and the 90 day outlook for the region. It's rare to see this line start above the flood level.



Aerial photo of the 1952 Flood of Record for the Milk River at Glasgow, MT. The peak stage was 33.2 feet.